Joining Subfield Data Repositories
VHO
Design Philosophy

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Primary Purpose

- Enable wider access / use to the best quality heliospheric data.

- Enhance calibrational capabilities available to data providers.

- Encourage the generation of new multi-instrument, multi-spacecraft data products.

- Provide common tools for data analysis.

Consequences

Enable wider access / use to the best quality heliospheric data.

The best data tends to be at the instrument sites for active missions

➡ Need to connect a distributed data environment

Wider access / use ➡ Uniform interface

⬇

Middleware

Wider use ➡ Multi data set searches ➡ Common dictionary metadata

Consequences

Enhanced calibrational capabilities

Enable multi-instrument, multi-spacecraft intercalibration

➡ • Sufficiently detailed, accurate metadata
• Data exchange with guaranteed updates

New multi-instrument, multi-spacecraft data products

Merged data products ➡ Common metadata standard

Update propagation ➡ Data exchange with updates

Common data analysis tools

The instrument sites already have software tools to access and analyze their data.

➡ Make tools publicly available with uniform documentation

Design Philosophy

Elements of the system:

- Middleware with search capability
- Dictionary for metadata to describe data and software
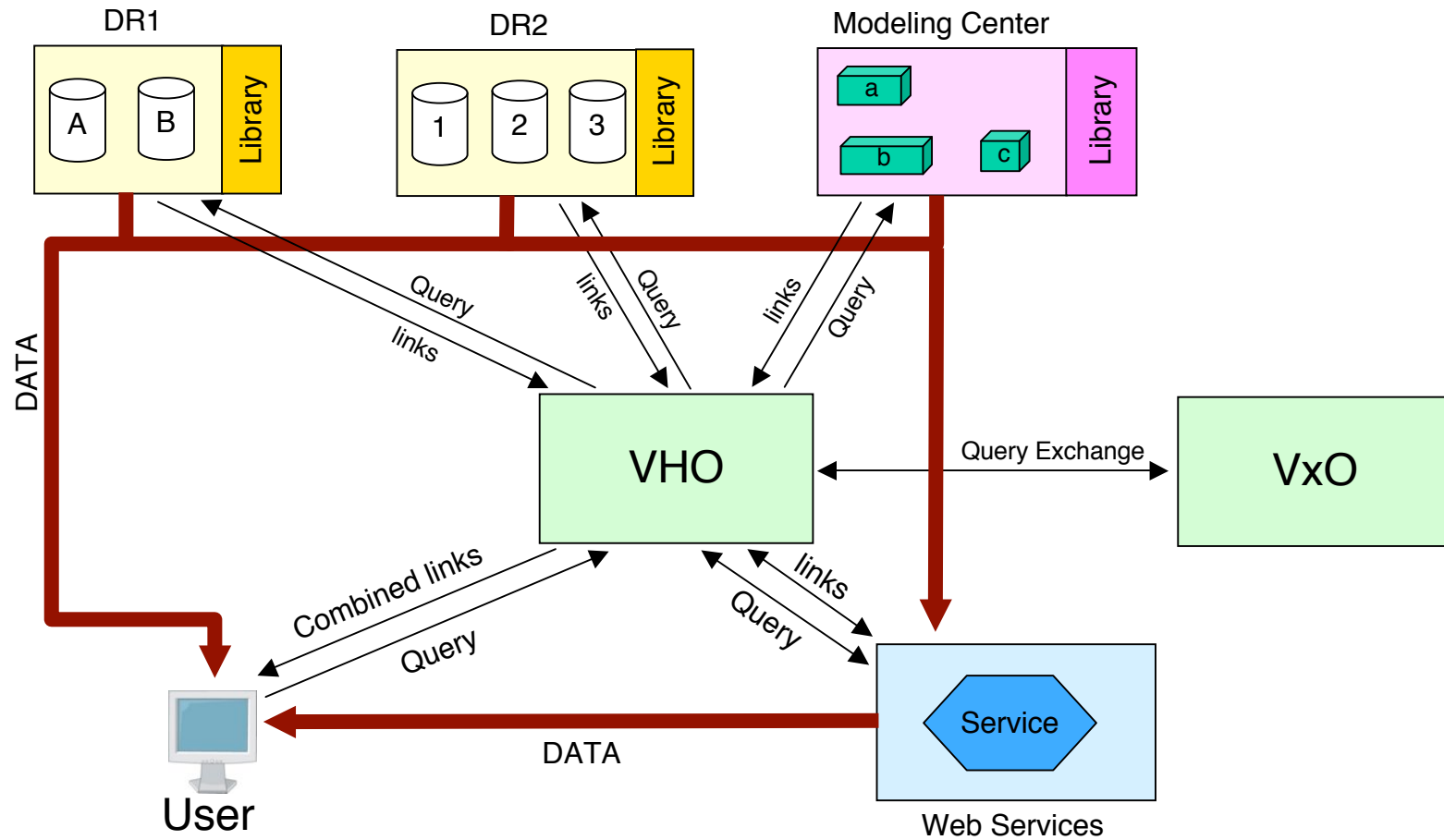- Data exchange mechanism

Approach:

- Minimum possible requirements on current and future repositories
- Rapid and low cost deployment ⟹ Extensible system
- Assume that we do not know everything ⟹ open, documented architecture
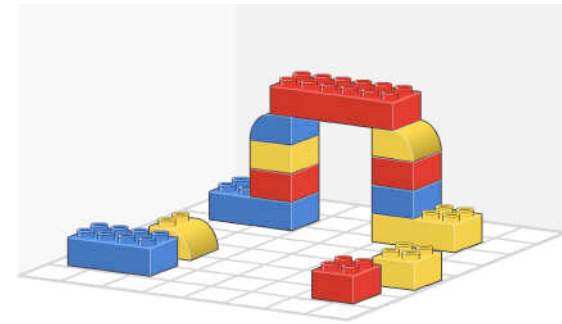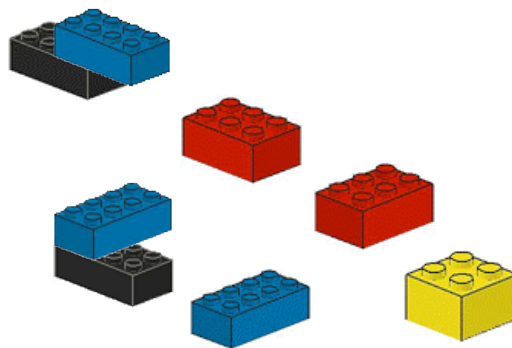
The Concept

The Concept

Data Exchange Backbone
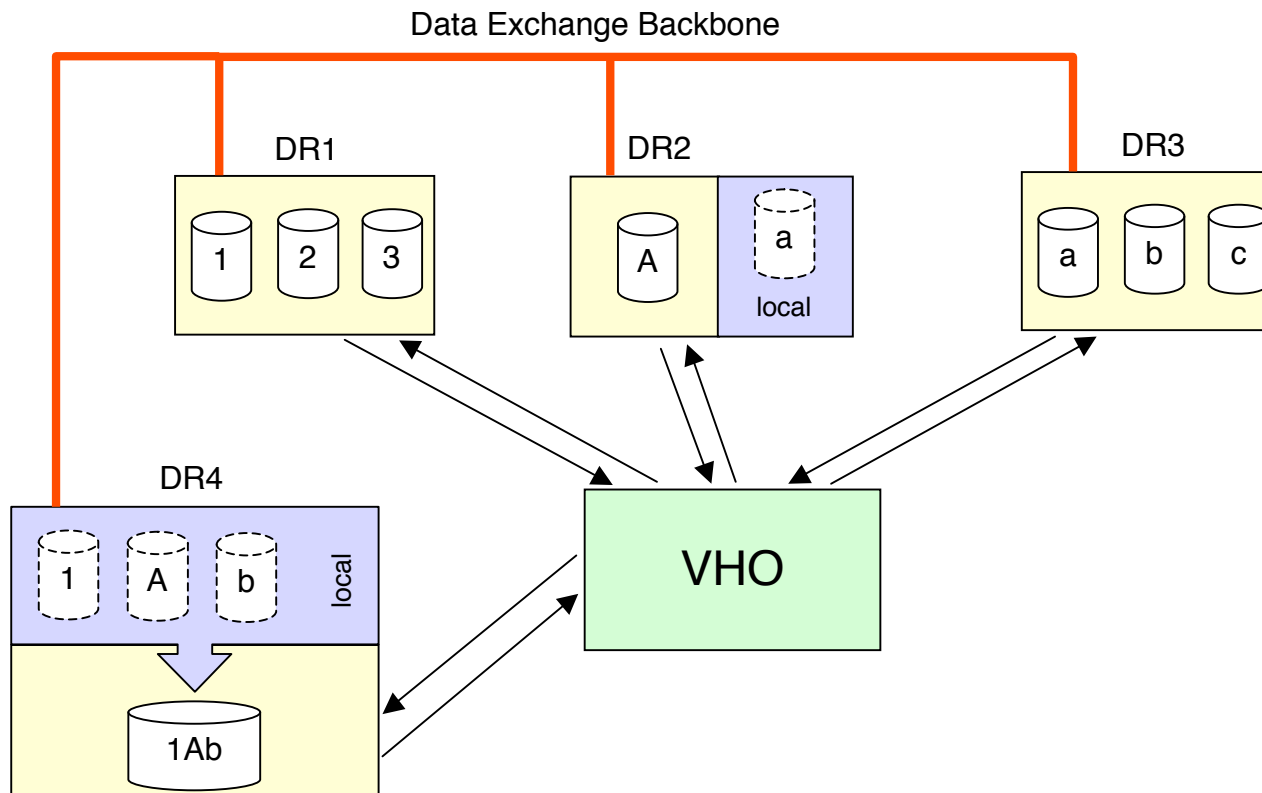
Who Is Going To Do It?

- Enable existing data service sites to achieve common goal.
  - Data expertise and infrastructure already there.
  - Minimal incremental funding required.
  - Science participation in data management.

- Support from small VHO team.
  - Setup expertise, middleware maintenance and development

- Evolve in response to user needs.

- Will have peer-reviewed process for elements of the environment.

- Development already started on the grass-roots level.

VHO Development Team

• Current VHO team members:

Andrew Davis	Caltech	ACE/ASC
George Ho	APL	ACE, WIND energetic particles, composition
Fred Ipavich	U. Maryland	SOHO in-situ plasma
Justin Kasper	MIT	WIND, IMP 8, Voyager plasma
Davin Larson	Berkeley	WIND, LP, RHESSI, plasma, energetic part.
Tom Narock	L3/GSFC	Distributed data systems
Aaron Roberts	GSFC	Helios, modeling, visualization
Peter Schroeder	Berkeley	STEREO
Ruth Skoug	LANL	ACE, Ulysses plasma
John Steinberg	LANL	Genesis, ACE, WIND plasma
Adam Szabo	GSFC	WIND, IMP 8, Voyager magnetic field, plasma
Jon Vandegriff	APL	High-energy particles, data models

• Role of VHO Team:
  - Setup expertise, middleware development and maintenance.
  - Data and system expertise and most of infrastructure already there.